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Psychological Interventions for Adolescent Psychosis:

A pilot controlled trial in routine care

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Abstract (200 words)

Purpose: Evidence for the recommendation to deliver Cognitive Behavioural Therapy (CBT) and Family Interventions (FI) to under-18's with psychosis derives from adult research, and no previous study has focused exclusively on an adolescent population. We evaluated adaptations of these therapies for adolescent inpatients with psychosis (CBTpA and FIpA), delivered as an adjunct to inpatient standard care (SC).

Subjects & Methods: Thirty adolescent inpatients with psychotic symptoms on admission were sequentially allocated to receive CBTpA+SC (n=10); FIpA+SC (n=10) or SC alone (n=10). Psychotic symptoms and functioning were measured at admission and discharge.

Results: Group comparisons did not reach conventional significance, but effect sizes in this pilot study showed a promising impact of CBTpA compared to SC alone, in reducing symptoms (ES: d=0.6), with smaller effect sizes for functioning (d=0.2) and for FIpA (symptoms, d=0.1 and functioning, d=0.4). There was no advantage of either additional treatment in reducing length of stay, but self-report satisfaction ratings were higher for both psychological therapies.

Discussion & Conclusions: The study is the first to focus on an exclusively adolescent population, using appropriately adapted therapy protocols. Findings suggest that the interventions are feasible, acceptable and helpful for adolescents with psychosis. Larger randomised controlled trials are now needed.

Keywords

schizophrenia, cognitive behavioural therapy, family intervention, inpatient

Text: 2033 words (excl. refs).

Introduction

Based on their clinical and cost effectiveness, Cognitive Behavioural Therapy and Family Intervention are recommended in UK and international guidelines for the treatment of schizophrenia in adults. Psychotic symptoms, depression, functioning, and hospital admission rates improve following therapy, with small to medium effect sizes. Despite recent selective meta-analyses reporting more limited effects, the most recent NICE update found no new evidence to warrant reconsideration of these recommendations (National Institute for Health & Clinical Excellence, 10, 2). The adult recommendations are adopted in clinical practice for the treatment of children and adolescents with psychosis, as there is a paucity of studies conducted exclusively with young people under 18 years. First episode and at-risk studies often include some younger participants, and a recent review suggests that early psychological intervention is effective (1), but the upper age limit in these studies is often as old as 35, with average sample ages of around 20 years. There may be important differences in the impact of treatment on younger participants, which are masked in mixed age studies (5). A new UK NICE guideline for treating psychosis in under 18s is under consultation, but, with the exception of two small qualitative studies suggesting that group interventions for voices may be useful (8,9), there is, as yet, no evidence base for psychological interventions for psychosis in an exclusively adolescent group.

The present paper describes a pilot controlled evaluation of adolescent adaptations of NICE recommended psychological interventions for psychosis: *Cognitive Behavioural Therapy for Adolescents with Psychosis* (CBTpA) and *Family Intervention for Adolescents with Psychosis* (FIpA), delivered in routine practice in

addition to standard care in an adolescent inpatient unit. Our aims were fourfold: 1) to pilot our adapted interventions for feasibility in the inpatient setting; 2) to evaluate the acceptability of the interventions to adolescents and their families; 3) to assess whether the addition of psychological therapies to standard care improved outcomes compared with standard care alone; and 4) to determine effect sizes for a future randomised controlled evaluation.

Subjects and methods

Participants

The study was conducted in a ten-bedded Adolescent Psychiatric Unit, providing care for a mixed gender group, between the ages of 12 and 18, in an inner city location. All young people presenting to the unit with symptoms of psychosis over an eighteen month period were included in the study and were consecutively allocated to receive either CBTpA or FIpA in addition to standard care, or standard care alone.

Measures

Brief Psychiatric Rating Scale (BPRS, 12). A widely used, psychometrically sound, 16-item clinician-rated scale designed to measure current psychotic and affective symptomatology over the previous three days on a scale from 1 (not present) to 7 (extremely severe). Total scores range from 16 to 112.

Children's Global Assessment Scale (C-GAS, 13). This scale is widely used to rate psychosocial functioning in child and adolescent mental health research and has good psychometric properties (15). A single global clinician rating from 1 (very poor) to

100 (no problem) is made based on emotional and behavioural difficulties, usually over the previous 3-month period. For this study rating periods were the three months preceding admission, and the period from admission to discharge.

Self-report scales (6). Adolescents and carers independently rated their satisfaction with the treatment received, on a 4-point scale ranging from 0 ('dissatisfied') to 3 ('very satisfied'). This was rated at discharge only.

Procedure

Allocations to condition were made sequentially, in advance of each admission. An ICD-10 (International Classification of Disease, World Health Organisation, 16) diagnosis was derived from clinical assessment on admission, and demographic information was taken from casenotes. Outcome measures were administered at admission and at discharge, by a single assessor who was independent of therapy delivery, but who was not blind to treatment allocation. The assessor was trained to criterion reliability by an expert rater, and received expert supervision on their ratings for the duration of the study. The psychological therapies were adapted from adult models to be suitable for adolescents and their families in the inpatient setting. Face-to-face time with the therapist was standardised to five hours for both conditions. Sessions were organised to suit family and young person preferences, so that each participant received the full five hours of therapy. The interventions were supported by written protocols and checklists of key tasks to be covered (available from the authors on request).

Interventions

Standard Care (SC) was delivered to all participants and included the following minimum elements: medication, developmentally tailored nursing care plan, participation in the unit's group activity programme and on-site education. As family and friends play a prominent role for this group, SC also included at least one family feedback session with a member of the medical team and a nurse, and care planning prioritised re-integration with school or other social and educational opportunities.

Cognitive Behavioural Therapy for Adolescents with Psychosis (CBTpA) comprised ten half-hour sessions, delivered up to twice weekly by the unit Clinical Psychologist (SB). Therapy was based on the Fowler, Garety and Kuipers (4) manual, and comprised assessment, formulation, work with psychotic symptoms including coping, reappraisal and validity testing, and work with affect and self-esteem, including dealing with maladaptive and stigmatising appraisals of psychosis and mental health problems. A number of adaptations were made to take account of the developmental stage of participants. Sessions were shorter (30 minutes) and location was flexible. Care was taken to normalise, rather than pathologise, aspects of the young person's presentation which could be attributed to personality or usual adolescent development. For younger adolescents, who are likely to be more concrete in their thinking than adults and have difficulty separating out their thoughts and feelings, behavioural change was emphasised, and abstract terms like 'depression' were explained or not used. Visual representations, such as cartoon faces to help with labelling emotional states, or pie-charts to colour in to represent the likelihood of different explanations for an experience, were routinely used. Particular emphasis was

placed on minimising the potential negative impact of contact with mental health services on the developing sense of self and identity, and promoting self-esteem, social inclusion and a sense of control.

Family Intervention for Adolescents with Psychosis (FIpA) comprised five hour-long sessions with two co-therapists delivered over 4-10 weeks. The intervention was based on that described Glick et al., (3) and Kuipers et al., (7). Information about psychosis, its causes and treatment was shared with the family, to improve their understanding of the illness. There was an emphasis on helping the family to identify precipitating stresses and to plan strategies for coping with future difficulties. The style of the work built on the strengths of the family and emphasised open communication, partnership and collaboration. A warm, empathic and positive therapeutic stance was taken, and any formulation of family functioning that might imply criticism or judgement was explicitly avoided.

Analysis

Analyses were completed using SPSS for Windows Version 20 (14). Clinical change during the course of the admission was calculated for each treatment group and overall. Change scores were subjected to a Shapiro-Wilk test, which indicated no significant deviation from a normal distribution, and therefore, despite the small sample sizes, parametric analyses were deemed appropriate. Paired sample t-tests were carried out to determine whether significant improvement over time had occurred within each group. Difference in change scores was assessed between all three groups using ANOVA, and effect sizes were calculated for the difference in change scores between each of the therapy groups and standard care. The length of

stay variable did violate the assumptions of normality, and therefore non-parametric Kruskal-Wallis H tests were used to compare all three groups, and Mann-Whitney U tests for the comparison to standard care.

Results

Participants

A total of thirty young people took part in the study, ten in each group. Demographic information is presented in Table 1. No participant had been admitted more than once previously.

INSERT TABLE ONE ABOUT HERE

Clinical Change

Scores on the clinical and functioning measures at admission and discharge are presented in Table 2, together with the length of stay. Two participants did not complete the clinical change measures, one in the FIpA group and one in the CBTpA group. Paired sample t-test showed significant improvement over time in symptoms and functioning within each therapy group, and significant improvement over time in symptoms but not functioning within the standard care group. Between group comparisons, however, did not reach significance, either for the clinical measures or for length of stay. Effect sizes (Cohen's d) for CBTpA compared to SC were 0.6 for improvement in BPRS scores, and 0.2 for the CGAS. For FIpA compared to SC, effect sizes were 0.1 for the BPRS, and 0.4 for the CGAS. Both therapy groups had an increased length of stay, but variability was very high.

INSERT TABLE TWO ABOUT HERE

Satisfaction ratings

Questionnaires were completed by 26/30 adolescents and 25/30 family members. The psychological therapies achieved more 'very satisfied' ratings from individuals and from carers (see Table 3).

INSERT TABLE THREE ABOUT HERE

Discussion

Our results indicate that standard care in a specialist inpatient tertiary service for adolescents with psychosis, with an average admission of 10-12 weeks, is associated with significant improvements in symptoms but not overall psychosocial functioning. NICE recommended psychological therapies can be feasibly added to the usual treatment regimen. Although between-group comparisons failed to reach significance in this small sample, results suggest enhancement of standard care, with a particular effect on symptom reduction, and effect sizes up to 0.6. All aspects of care were acceptable to most adolescents and their families, but psychological therapies were rated as more satisfactory. Psychological therapies did not reduce length of stay.

Compared to recent meta-analyses in adult populations, effects, albeit not statistically significant, appeared to be of greater magnitude for CBTpA, but not for FIpA. The adolescent adaptations of the therapies were shorter than their adult equivalents, comprising just five hours of therapy, compared to 16+ sessions (CBTp) or 10+ sessions (FIp). The therapy protocol was designed on the basis of extensive clinical experience of young people in an inpatient setting, and the shorter duration reflects

the particular attentional needs of the group and the overall faster pace of change with difficulties that are usually less entrenched and more readily accessible than in an adult population with psychosis. Nevertheless, this could be considered a limitation, and may have restricted the clinical impact of therapies.

Our study is small, and although allocation to additional treatment was determined prior to admission and should therefore be unbiased, it was pragmatic, rather than random. Our selection on the basis of psychotic symptoms, rather than a confirmed schizophrenia spectrum diagnosis may be questioned: we consider the diagnostic uncertainty in first presentations, the pragmatic nature of the study and the flexibility within the NICE guidance to justify our practice. There was, however, variation between groups in diagnoses, which may account for the differences in length of stay. The assessor was independent of therapy allocation and delivery, but, as they worked in the same service, they did not remain blind to treatment allocation. There are some limitations of measurement. The Brief Psychiatric Rating Scale, although employed previously in adult trials of CBTp, may not be the best instrument to measure the changes in symptom distress and impact that are the primary outcomes of CBTp. No measure of relapse, parent factors (such as affect and burden of care), or of parent-child interactions was employed to determine these specific effects of FIpA.

These limitations notwithstanding, our results are encouraging and a large scale, randomised controlled trial is warranted. Our findings suggest that the initial focus should be on CBTpA, and improvement in symptoms. Our achieved effect size of 0.6 implies that a sample size of 90 (45 per group), with alpha set at 0.05, would give 80% power to detect between group differences. However, given the variability in

length of stay, larger samples may be required to test the economic effectiveness of the intervention.

Conclusions

This is the first attempt to evaluate the efficacy of psychological intervention with adolescents with psychosis in an inpatient setting. Results are promising, and indicate that the interventions are feasible and acceptable, with the potential to augment standard care. A larger, randomised controlled study is warranted to test clinical efficacy and economic effectiveness.

Conflict of interest: None

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Table 1. Demographic and clinical data by treatment group

	CBTpA (n = 10)	**FIpA** (n = 10)	**Standard care** (n = 10)	**Total** (n=30)
Mean age in years (SD) (Range 14-17)	16.9 (0.6)	16.9 (1.0)	16.9 (0.6)	16.9 (0.7)
Gender (Male/Female)	6M 4F	4M 6F	6M 4F	16M 14F
Percentage first admission	60%	70%	90%	73%
Diagnosis				
Schizophrenia	9	6	6	21
Bipolar Affective Disorder	0	2	1	3
Acute polymorphic psychotic disorder	0	1	0	1
Mania with psychotic symptoms	1	0	3	4
Depression with psychotic symptoms	0	1	0	1

Key: CBTpA – Cognitive behavioural therapy for Adolescents with Psychosis; FIpA – Family Intervention for Adolescents with Psychosis.

Table 2. Clinical change and length of stay

		CBTpA (n = 10)	FIpA (n = 9)	Standard Care (n = 9)	Total (n=28)
Mean BPRS (SD)	Admission	48.4 (17.5)	36.3 (16.4)	43.0 (21.3)	42.8 (18.5)
	Discharge	14.1 (7.1)	13.2 (11.2)	21.3 (16.6)	16.1 (12.2)
	Change	34.3 (20.4)	23.1 (14.4)	21.7 (23.1)	26.6 (19.8)
	Pre-post t (df)	5.3 (9)	4.8 (8)	2.8 (8)	7.1 (27)
	p-value	<0.001	0.001	0.02	<0.001
	Between groups		F(2,25) =1.2, p=0.3		
Compared to standard care	Mean difference (SE)	-12.6 (10.0)	-1.4 (9.1)		
	t (df)	-1.3 (17)	-0.2 (16)		
	p-value	0.2	0.9		
	Pooled SD	22.1	18.7		
	Effect size (d)	0.6	0.1		
Mean CGAS (SD)	Admission	40.0 (10.7)	34.9 (11.6)	45.9 (16.0)	40.3 (13.2)
	Discharge	63.1 (15.0)	62.3 (11.7)	63.2 (18.2)	62.9 (14.6)
	Change	23.1 (19.7)	27.4 (15.1)	17.3 (28.9)	22.6 (21.5)
	Pre-post t (df)	-3.7 (9)	-5.5 (8)	-1.8 (8)	-5.6 (27)
	p-value	0.005	0.001	0.11	<0.001
	Between groups		F(2,25)=0.5, p=0.6		
Compared to standard care	Mean difference (SE)	5.8 (11.2)	10.1 (10.8)		
	t (df)	0.5 (17)	0.9 (16)		
	p-value	0.6	0.4		
	Pooled SD	23.9	22.9		
	Effect size (d)	0.2	0.4		
Median length of stay in days	Days	65.5	71.5	82.5	76
	Range	10-308	8-358	20-149	8-358
	n	(n=10)	(n=10)	(n=10)	(n=30)
	Between groups		χ^2=0.3, p=0.8		
Compared to standard care	U	42.0	48.5		
	p-value	0.6	0.9		

Key: CBTpA – Cognitive behavioural therapy for Adolescents with Psychosis; FIpA – Family Intervention for Adolescents with Psychosis; BPRS – Brief Psychiatric Rating Scale; CGAS-Child Global Assessment Scale

Table 3. Self-reported satisfaction

		Number reporting (%)			
	n	**Very satisfied**	**Satisfied**	**Indifferent**	**Dissatisfied**
Individual					
CBTpA	8	4 (50)	4 (50)	-	-
FIpA	10	5 (50)	4 (40)	1 (10)	-
SC	8	1 (12.5)	4 (50)	3 (37.5)	-
Family/carer					
CBTpA	8	7 (87.5)	1 (12.5)	-	-
FIpA	9	6 (67)	2 (22)	1 (11)	-
SC	8	4 (50)	2 (25)	1 (12.5)	1 (12.5)

Key: CBTpA – Cognitive behavioural therapy for Adolescents with Psychosis;
FIpA – Family Intervention for Adolescents with Psychosis; SC – Standard Care